Amendments to the Drawings:

Attached hereto in the **Appendix** is "replacement" sheet 1. The designation of "replacement sheet" indicates changes were made to the sheet as compared to drawing previously submitted in Applicants reply dated July 26, 2004. For FIG. 2 of sheet number 1, Applicants have added an electrical connection from the battery 30 to the conductor coupling the adapter 32 to the power conditioning circuitry 16. Support for such drawing change can be found throughout the specification including page 1, line 6 detailing the "invention relates to power management for battery powered devices." The connection added via this Amendment clarifies the power path the battery 30 may utilize to power the system in a battery powered device.

Attachment: Appendix "replacement" sheet 1.

REMARKS/ARGUMENTS

Responsive to the Official Action mailed March 4, 2005, Applicants provide the following remarks. Reconsideration and allowance of the subject application, as amended, are respectfully requested.

Double Patenting

Enclosed is a Terminal Disclaimer to obviate the double patenting rejection over U.S. Patent No. 6,741,066. Therefore, no specific discussion of the Double Patenting rejection is believed necessary. Also enclosed is a credit card authorization form authorizing a charge in the amount of $250 to cover the $130 Terminal Disclaimer Fee and the $120 one month time extension fee.

35 USC §103 Claim Rejections

The Examiner rejected claims 7 – 14 and 16 - 29 under 35 USC §103(a) as being unpatentable over Fritz et al. (U.S. Patent No. 5,684,382, hereinafter "Fritz") in view of Le et al. (U.S. Patent No. 5,819,087, hereinafter "Le"). The Examiner argues "Fritz discloses in figures 1-6B an adapter 124 for providing an output DC signal, said adapter comprising: a PWM generator 246, said PWM generator generating a PWM signal in response to a feedback signal FB from an external device computer system…" The Examiner then indicates "Fritz does not explicitly disclose a DC/DC converter." However, the Examiner relies on Le for disclosing a "DC/DC converter 198" and argues "it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Fritz's apparatus and include a

DC/DC converter, as disclosed by Le, in order to provide appropriate DC currents for charging batteries plugged into the external device/portable computer." Applicants respectfully traverse this rejection.

Applicants amended claim 7 is directed to an adapter comprising "a PWM generator and a DC to DC converter, said PWM generator generating a PWM signal in response to receipt of an analog feedback signal from one of a plurality of error amplifiers of a charge controller of an external device, said analog feedback signal representative of a power condition of said external device, said DC to DC converter configured to receive said PWM signal and adjust said output DC signal in response to said PWM signal." (emphasis added). Support for the amendment to claim 7 can be found throughout the specification including page 4, lines 3 – 10, ("the charge controller includes the error amplifiers to generate a feedback control signal") and page 5, lines 19 – 23 (with reference to FIG. 2 indicating the "adapter 32 is feedback enabled to receive one or more feedback controls signals generated by the error amplifiers associated with the charger.") No new matter has been entered.

In contrast, Fritz is generally directed to (see FIG. 1 of Fritz) control of an AC adapter 124 utilizing a monitoring circuit 108, digital communication signals, one or more microcontrollers 100, 110 to perform various software tasks, and dither control circuitry 122 in order to provide an adjustment signal DITHER_CTL to the adapter 124. In particular, Fritz teaches the monitoring circuit 108:

> provides information to the battery microcontroller 100 regarding the status of the battery cells 102 during charging as well as discharging. Functions provided by the monitoring circuit 108 include: battery cell overvoltage monitoring, cell undervoltage monitoring, overdischarge current monitoring, and overcharge current monitoring. Column 5, lines 27 – 34.

The battery microcontroller 100 then "provides supervisory functions for controlling the charging and discharging of the battery cells 102." Column 4, lines 58 – 59. Fritz also teaches a "mobile super input/output chip MSIO 110 is included in the preferred embodiment. The MSIO 110 provides various processing and control functions, and communicates with the battery microcontroller 100 via a standard I^2C-bus and a master battery signal MSTR_BAT." Column 6, lines 2 – 6. Fritz requires the use of the dither control circuit 122 which communicates with the MSIO 110 and the battery microcontroller 100 via the I^2C-bus. Fritz further teaches "[t]he adjustment signal DITHER_CTL is supplied to the AC adapter 124 by the AC dither control circuitry 122, which is described more fully below in conjunction with FIG. 2A." Column 7, lines 26 – 29. (emphasis added.)

In summary, Applicants claim 7 requires the PWM generator of the adapter generates a "PWM signal in response to receipt of an analog feedback signal from one of a plurality of error amplifiers of a charge controller of an external device." (emphasis added.) There are no additional components or processing necessary to provide the analog feedback signal from one of the plurality of error amplifiers to the adapter. In contrast, Fritz teaches one or more microcontrollers 100, 110 that communicate digitally via the I^2C bus. Fritz requires the dither control circuitry 122 to communicate with one or more of the microcontrollers 100, 110 and to provide the DITHER_CTL signal to the adapter 124. Again, Applicant's claim 7 does not require any microcontrollers 100, 110, I^2C bus communications, and dither control circuitry 122 as taught by Fritz.

In addition, Le does not provide the missing teachings of Fritz. Le is generally concerned with "Flash ROM sharing between processor and microcontroller during booting and handling warm-booting events." See Title of Le. Accordingly, neither Fritz nor Le, alone or in combination, teach "said PWM generator generating a PWM signal in response to receipt of an analog feedback signal from one of a plurality of error amplifiers of a charge controller of an external device, said analog feedback signal representative of a power condition of said external device" as required by claim 7. Therefore, Applicants respectfully submit claim 7 is allowable.

Claims 8 - 12 depend, directly or indirectly, from claim 7. Therefore, Applicants respectfully submit claims 8 - 12 are also allowable by virtue of their dependency, directly or indirectly, from claim 8 in addition to their own further limitations.

Claim 13 is directed at an electronic device comprising "a charge controller comprising a plurality of error amplifiers, each one of said plurality of error amplifiers capable of generating an analog feedback signal representative of a power condition of said electronic device, wherein an adapter comprises a PWM generator generating a PWM signal in response to receipt of any one of said analog feedback signals to adjust an output DC signal from said adapter." (emphasis added).

As earlier adduced regarding claim 7, neither Fritz nor Le, alone or in combination, teach "a charge controller comprising a plurality of error amplifiers, each one of said plurality of error amplifiers capable of generating an analog feedback signal representative of a power condition of said electronic device, wherein an adapter comprises a PWM generator generating a PWM signal in response to receipt of any one of said analog feedback signals to adjust an output DC signal from said adapter" as required by claim 13. Therefore, for similar reasons earlier adduced regarding claim 7, Applicants respectfully submit claim 13 is also allowable.

Applicants have cancelled, without prejudice, claims 15 – 18. Claims 14 and 19 – 22 depend directly or indirectly from claim 13 and as such incorporate all the limitations of claim 13. Accordingly, Applicants respectfully submit that claims 14 and 19 – 22 are in condition for allowance by virtue of their dependence from claim 13, as well as for their own limitations.

The Examiner had also rejected method claims 23 – 29 as being unpatentable over Fritz in view of Le. Amended claim 23 is directed to a method requiring: "monitoring a power condition of an external device coupled to said adapter; providing an analog feedback signal from one of a plurality of error amplifiers of a charge controller of said external device to said adapter representative of said power condition of said external device; adjusting a PWM signal generated by said adapter in response to said analog feedback signal received by said adapter; and adjusting said DC power signal provided by said adapter in response to said PWM signal." (emphasis added.)

For similar reasons adduced above independent claim 7, Applicants respectfully submit claim 23 is also allowable. Applicants have cancelled, without prejudice, claims 28 and 29. Claims 24 - 27 depend directly or indirectly from claim 23 and as such incorporate all the limitations of claim 23. Accordingly, Applicants respectfully submit that claims 24 - 27 are in condition for allowance by virtue of their dependence from claim 23, as well as for their own limitations.

Accordingly, Applicants respectfully submit that in light of the foregoing claim amendments and remarks, all of the presently pending claims 7 – 14 and 19 – 27 are now in a condition for allowance. Reexamination and reconsideration are respectfully requested. Early allowance is earnestly solicited. In the event the Examiner deems personal contact desirable in disposition of this application, the Examiner is respectfully requested to call the undersigned attorney at (603) 668-6560. In the event any additional fees are payable, please charge them to our Deposit Account No. 50-2121.

Respectfully submitted,

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Attachments Terminal Disclaimer
Credit Card Authorization
Appendix including Replacement Drawing Sheet #1

APPENDIX A

REPLACEMENT SHEET 1

Serial No.: 10/685,043
Filed: October 14, 2003
Atty Docket: O2Micro 00.07CON
Title: POWER MANAGEMENT FOR BATTERY POWERED APPLIANCES